



Magnetic-assisted Robotic Surgery to Facilitate Reduced-port Radical Prostatectomy

Ryan L. Steinberg, Brett A. Johnson, and Jeffrey A. Cadeddu

BACKGROUND Tissue retraction during minimally-invasive urologic surgery currently is achieved by either gravity via patient positioning or placement of additional ports for robotic arms or bedside assistant instrumentation. A novel magnetic retractor system (Levita Magnetic Surgical System, San Mateo, CA) was recently approved by the Food and Drug Administration for use in minimally invasive surgery.

OBJECTIVE To evaluate the safety and efficacy of magnetic-assisted robotic surgery (MARS) to perform a reduced-port radical prostatectomy (RP).

MATERIALS Sixteen patients underwent a MARS reduced-port RP in the treatment of prostatic adenocarcinoma at a single institution from June 2018 to September 2018 utilizing the magnetic retraction device in lieu of the 4th robotic arm for tissue retraction. All surgical procedures were completed using the da Vinci surgical system (Intuitive Surgical Inc., Sunnyvale, CA). The magnetic retractor was used to manipulate and retract the colon, peritoneum, seminal vesicles, prostatic capsule during neurovascular bundle dissection, and bladder during lymphadenectomy.

RESULTS All cases were successfully completed without placement of a 4th robotic arm or an additional assistant port. The magnetic retractor subjectively provided comparable retraction and exposure to these tools. No intraoperative or immediate postoperative complications were noted. Mean operative time was 236 ± 23 minutes and mean blood loss was 265 ± 88 mL. All patients were discharged to home by postoperative day 2.

CONCLUSION Magnetic-assisted reduced-port robotic prostatectomy is a novel technique that appears to be both safe and effective. Use of the magnetic system avoids the need for a 4th robotic arm, potentially minimizing the morbidity of surgery and improving cosmesis. Further, none of the fundamental steps of the procedure were changed or compromised. Outcomes analysis in larger cohorts and cost analysis is warranted. UROLOGY 126: 237, 2019. © 2019 Elsevier Inc.



 The video related to this article can be found online at: <https://doi.org/10.1016/j.urology.2019.01.017>.

Disclosures:

- J. Cadeddu is a member of the advisory board and an investor in Levita Magnetics, Inc.

- R. Steinberg and B. Johnson declare they have no disclosures.

From the Department of Urology, University of Texas Southwestern, Dallas, TX
Address correspondence to: Jeffrey A. Cadeddu, MD, Department of Urology, University of Texas Southwestern, 2001 Inwood Road, Building WCB3, Suite 4.894, Dallas, TX 75390. E-mail: Jeffrey.Cadeddu@UTSouthwestern.edu

Submitted: October 29, 2018, accepted (with revisions): January 14, 2019